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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/289,327	04/08/1999	JEFFREY B. SAMPSELL	KLR:7146.021	8458

7590 03/08/2005

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EXAMINER	
MACK, RICKY LEVERN	
ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/289,327	SAMPSELL ET AL.	
	Examiner	Art Unit	
	Ricky L. Mack	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *242 and 246-248* is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☒ Claim(s) *157,162,164,166-168,170,206,211,213,215,216 and 218* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Detailed Action*.

Continuation of Disposition of Claims: Claims pending in the application are 132-136,148-150,156-158,162-171,173,178-185,197-199,205-207,211-219,221,223,225-228,242,246-251 and 262.

Continuation of Disposition of Claims: Claims rejected are 132-136,148-150,156,158,163,165,169,171,173,178-185,197-199,205,207,212,214,217,219,221,223,225-228,249-251 and 262.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/05/2004 has been entered.

Claim Objections

2. Claim 132 is objected to because of the following informalities: In claim 132, line 1, "a light source the" should be changed to "a light source that".

3. Claim 163 is objected to because of the following informalities: In claim 163, lines 8 and 9, the phrase "transmits another of said light components ***and*** LCD panels" should be changed to "transmits another of said light components to LCD panels"

4. Claims 166 and 167 are objected to because of the following informalities: Claim 166 is objected to for containing the same limitation as claim 167, both of which depend from claim 163. Appropriate correction is required.

5. Claims 215 and 216 are objected to because of the following informalities: Claim 215 is objected to for containing the same limitation as claim 216, both of which depend from claim 212. Appropriate correction is required.

Specification

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 132-136,148-150,156,158,163,165,169,171,173,178-185,197-199, 205, 207, 212, 214, 217, 219, 221, 223, 225-228, 249-251 and 262 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurematsu et al. (5267029).

Kurematsu discloses, as in claims 131-135 and 249-251, a polarization converter for use with a light source the generates a light beam having at least two light components, comprising an optics array capable of separating said light beam into at least one light component (P_R) polarized differently than another light component (S_B), wherein said one light component and said another light component are within a single light beam (*see beam through lens* 1), and wherein said one light component has a different color than said another light component, and wherein said light source defines an initial étendue and said optics array has an étendue substantially greater than one times said initial étendue. The limitation with respect to said initial étendue compared to the étendue of the optics array is considered inherent provided (1) that the prior art discloses claimed structured and (2) étendue is a measure of optical throughput and since an optical assembly as disclosed by Kurematsu encounters

filtering, it inherently would lose light and the light passing through would also inherently have an étendue less than the initial étendue.

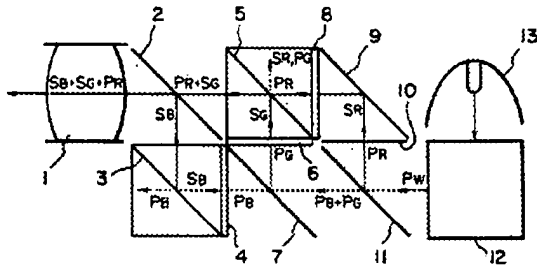


FIG. 1

Kurematsu discloses, as in claims 136, wherein said optics array has at least one dichroic filter (2, 7 or 11).

Kurematsu discloses (see fig. 1), as in claims 148, wherein said light source produces light having three light components and said optics array separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component.

Kurematsu discloses (see fig. 1), as in claims 149, wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component (*see beam through lens* 1).

Kurematsu discloses (see fig. 1), as in claim 150, wherein said optics array separates said two light components so that one of said components has s-polarization and the other light component has p-polarization (*see beam through lens* 1).

Kurematsu discloses (see fig. 5), as in claims 156 and 205, a light source (white light) for generating a light beam having a least two light components (S_B, S_G, P_R), wherein said light components are polarized and at least one of said light components is polarized differently (S_G, P_R)

than another of said light components and said one of said light components has a color that is different than said another of said light components; a projection system having plural polarizing beam splitters and dichroic filters therein, wherein each polarizing beam splitter and dichroic filter reflects at least one of said light components and transmits at least another of said light components and a plurality of LCD panels (25, 26, 27), and LCD panel generating a light-component-specific image associated with one of said light components, and a projection lens (1) for projecting an image combined from the light-component-specific images from the LCD.

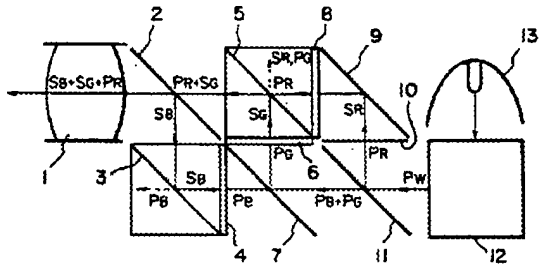
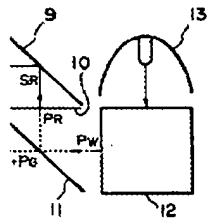


FIG. 1

Kurematsu discloses (see fig. 1), as in claims 158 and 207, wherein said light source (13) includes a polarization converter (12) for pre-filtering said light beam.



Kurematsu discloses (see fig. 5 below), as in claims 163 and 212, a light source for generating a light beam having at least three light components, wherein one of said light components is p-polarized (P_R at lens 1) and two of said light components are s-polarized (S_B, S_G); a projection system having

plural polarizing beam splitters (28, 29) and dichroic filters (30, 31) therein, wherein each polarizing beam splitter and dichroic filter reflects one of said light components and transmits another of said light components and LCD panels (25, 26, 27), each LCD panel generating a light-component-specific image associated with each light component, wherein said polarizing beam splitters and said dichroic filters are arranged in a substantially x-shaped configuration (made up of refs. 28-31), wherein said dichroic filters are normal to said polarizing beam splitters and arranged to intersect adjacent an edge thereof; and a projection lens (1) for projecting an image combined from the light-component-specific images from the LCDS.

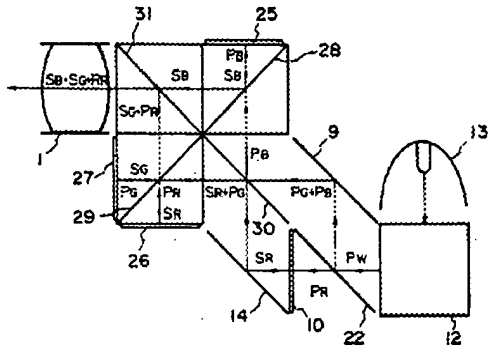


FIG. 5

Kurematsu discloses (see fig. 5), as in claims 165 and 214, wherein said light source (13) includes a polarization converter (12) for pre-filtering said light beam.

Kurematsu discloses (see fig. 5), as in claim 169, 171, 181-185, 217 and 221, a light (white light) source (13) for generating a light beam having at least two light components, wherein said light components are polarized and at least one of said light components is polarized differently (P_R) than another of said light components (S_B or S_G) and said one of said light components has a color that is different than said another of said light components, a projection system having a plurality of polarized light modulators (25, 26, 27), each modulator generating a light-component-specific image associated with one of said light components, and a projection lens (1) for projecting an image combined from the

light-component-specific images from said modulators. The limitation with respect to said initial étendue compared to the étendue of the optics array is considered inherent provided (1) that the prior art discloses claimed structured and (2) étendue is a measure of optical throughput and since an optical assembly as disclosed by Kurematsu encounters filtering, it inherently would lose light and the light passing through would also inherently have an étendue less than the initial étendue.

Kurematsu discloses (see fig. 5), as in claim 171 and 181, wherein said light source (13) includes a polarization converter (12).

Kurematsu discloses (see fig. 5), as in claims 178 and 197, wherein said light source produces light having three light components (see ref. 1) and said optics array separates said light so that two of said light components have the same polarization, which is different than the polarization of the third light component (S_B, S_G & P_R).

Kurematsu discloses (see fig. 5), as in claims 179 and 198, wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component (*see* S_B, S_G & P_R at ref. 1).

Kurematsu discloses (see fig. 5), as in claims 180 and 199, wherein said optics array separates said two light components so that one of said components has s-polarization and the other light component has p-polarization (*see beam through lens* 1).

Kurematsu discloses, as in claims 185, wherein said optics array has at least one dichroic filter (30, 31).

Kurematsu discloses, as in claims 223 and 225, two polarizing beam splitters (28, 29).

Kurematsu discloses (see fig. 5), as in claim 226, wherein said light source produces light having three light components (see ref. 1) and said optics array separates said light so that two of said

light components have the same polarization, which is different than the polarization of the third light component (S_B, S_G & P_R).

Kurematsu discloses (see fig. 5), as in claim 227, wherein said three light components are blue, green and red and said blue component and said green component have the same polarization, which is different than the polarization of said red component (*see* S_B, S_G & P_R at ref. 1).

Kurematsu discloses (see fig. 5), as in claim 228, wherein said optics array separates said two light components so that one of said components has s-polarization and the other light component has p-polarization (*see beam through lens* 1).

Kurematsu discloses (see fig. 5), as in claim 262, a device with an inherent method of converting light comprising: (a) producing a light beam that is nonpolarized and has at least two light components; (b) separating said light beam into at least one light component polarized differently than another light component, said one light component having a color that is different than said another light component, wherein substantially all of said light beam is transmitted; and (c) wherein said light beam is first separated into a first polarized component having a first polarization and a second polarized component having a second polarization; and wherein the first polarized component is separated into a first light component and a second light component and the polarization of said first light component is changed, and wherein said second polarized component is separated spectrally into said first light component and said second light component and the polarization of said second light component is changed, so that said first light component has said second polarization, and said second light component has said first polarization.

Examiner's Comment

9. Étendue is an inherent feature of optical systems and most patent disclosures are silent on this inherent feature. The claims do not define structure to differentiate the function of the claimed étendue limitation. Kurematsu discloses a light source and a polarizing converter (12), which introduces a polarized light into the optical array. Applicant's claims do recite "a polarizing light source" and when the characteristics of the light from the light source are described in the claims, it does not limit the description of the components to light leaving the light source and consequently, Kurematsu reads on the claimed limitations.

10. Applicant is invited to contact the Examiner to conduct an interview for the purpose of discussing the claimed invention in an attempt to expedite prosecution.

11. Applicant is reminded that an election of species to embodiments directed to figures 5 and 7 was filed on 3/26/04. Should applicant submit new independent claims, they should likewise be directed to either figure 5 or figure 7.

Allowable Subject Matter

12. Claims 242 and 246-248 are allowed.

13. Claims 157, 162, 164, 166-168, 170, 206, 211, 213, 215, 216 and 218 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowability: The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 157, 162, 164, 166-168,

170, 206, 211, 213, 215, 216, 218, 242 and 246-248, wherein the claimed invention comprises a filter stack having a cholesteric color filter mechanism; a pair of light absorbing stops and a half-wave plate; and a light source impinging upon blue-transmitting dichroic filter at 45 degree, then on a polarizing beam splitter at 45 degrees, then on an LCD panel, as claimed. The combination of all the claimed features are not anticipated or made obvious by the prior art and all of said features are relied upon for a determination of allowability.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited for disclosing a projection system which separates light into a combination of S & P polarization and with at one of the three light component have a different polarization at output that the other two light components: Du (20030048421A1) and Tajiri et al. (EP1096302A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky L. Mack whose telephone number is (571) 272-2333. The examiner can normally be reached on Monday-Friday (6:30 AM to 4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ricky L Mack
Primary Examiner
Art Unit 2873

RM
March 6, 2005